

Joint Oversight Hearing of the Senate Environmental Quality Committee and Senate Budget and Fiscal Review Subcommittee No. 2 on Resources, Environmental Protection, Energy and Transportation

January 17, 2018

California Air Resources Board- Responses to Questions

1. The Scoping Plan focuses on cumulative greenhouse gas (GHG) emissions reductions ARB intends to achieve over the period 2021 through 2030. SB 32 (Pavley, Chapter 249, Statutes of 2016) requires real GHG emissions in the year 2030 to be 40% below California's 1990 level. It is entirely possible that if emissions cuts are front-loaded then the state would meet the Scoping Plan's cumulative reduction metrics, but fail to meet the SB 32 statutory target for 2030. This risk seems more pressing given ARB's reliance on cap-and-trade in the late 2020s. California's cap-and-trade program features unlimited banking, which makes it fundamentally a cumulative pollution control instrument, rather than a program that requires any specific annual emissions levels. What measure does ARB have in place to ensure that annual emissions decline to meet the SB 32 target? Can ARB provide an explicit outline for how and when regular reviews will occur, and what actions would be taken if there is indication that California may not meet the SB 32 target?

Response: The California Air Resources Board's (CARB) inventory and recent Scoping Plan modeling indicate we're on track to meet our AB 32 (Nuñez, Chapter 488, Statutes of 2000) greenhouse gas (GHG) target of 1990 levels of emissions by 2020. To track progress against the State's statutory GHG reduction targets, each year CARB posts an annual GHG inventory, publically available on our website¹. To further understand how GHG emissions may change year-to-year CARB tracks other factors like economic activity, fuel use, climate conditions, growth in renewables, deployment of cleaner vehicles, and others. All of these metrics, including the GHG inventory, are publicly available data. Cap-and-Trade², is just one of several policies in the Scoping Plan to chart

¹ <https://www.arb.ca.gov/cc/inventory/data/data.htm>

² <https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>

the path to 2030, we need to track all of the policies and sectors not covered by Cap-and-Trade to ensure needed reductions.

If it appears emissions are not declining as needed, recognizing that year-to-year variability due to climate, global fuel prices, or economic factors can influence emissions, CARB would evaluate which sectors are not responding as anticipated, review all programs that cover those sectors, and ascertain why as well as assessing the best path forward to ensure California stays on track to meet its legislatively established GHG targets.

Reporting and oversight opportunities are listed in the attachment and include statutorily required updates to the Scoping Plan, AB 32 reporting requirements, annual updates to the GHG inventory, annual oversight hearings by the Joint Committee on Climate Change policies, and CARB Board updates.

The Cap-and-Trade Program does not include unlimited banking, market participants have always been subject to holding limits. Most businesses are not choosing to purchase and bank up to their holding limits, most likely due to the carrying costs associated with purchasing and holding millions of allowances.

2. The Scoping Plan assumes that cap-and-trade will fill the gap between the emissions reductions ARB projects from known measures and what is required to meet the SB 32 target. For 2030, the Scoping Plan assumes that cap-and-trade will reduce emissions by 34 to 79 million tons. Does ARB have an estimate of which sectors would actually achieve those reductions as a result of cap-and-trade and how? If not, how does ARB plan to use the state GHG inventory to evaluate and monitor whether cap-and-trade is delivering the necessary reductions called for in the 2030 Scoping Plan?

Response: The Cap-and-Trade Program is designed to prompt covered businesses to implement the lowest-cost emissions reduction actions first. As regulators, we do not always have perfect information on where the lowest-cost emissions reductions can occur which is why the Cap-and-Trade Program delivers reductions at lower costs than other prescriptive alternatives. Some sectors will respond more quickly to a carbon price than others. For example, the electricity sector is already responding to today's carbon price since the price has been incorporated into dispatch models in response to the Cap-and-Trade Program. The ability of each sector to react to a carbon price without merely reducing production is something that CARB has been evaluating for the past few years and discussing with industry and stakeholders.

The GHG inventory allows for a transparent review of not only the total GHG emissions, but also the trends in GHGs by economic sector. CARB tracks and publishes this information each year. As noted in the response to Question 1, if it appears emissions are not declining as needed, recognizing year to year variability due to climate, global fuel prices, or economic factors that can influence emissions, CARB would evaluate which sectors are not responding as anticipated, review all programs that cover those sectors, and ascertain why as well as assessing the best path forward to achieve the reductions necessary to meet the Legislatively established GHG targets.

3. What is ARB's plan to establish key milestones or mid-term targets so the state can assess its progress toward the SB 32 target and take early action if necessary?

Response: As noted in the attachment and above, opportunities to review the State's progress toward achieving our GHG targets include statutorily required updates to the Scoping Plan, AB 32 reporting requirements, annual updates to the GHG inventory, annual oversight hearings by the Joint Committee on Climate Change policies, and CARB Board updates. As with all of CARB's programs, effective and transparent monitoring and mid-course adjustments, as needed, are the right approach to ensure the State achieves its targets.

4. In the Scoping Plan, the Low Carbon Fuels Standard (LCFS) is assigned an 18% Carbon Intensity (CI) reduction target. In comment letters to ARB, groups like NextGen California have argued that the 18% CI target is "excessively conservative" and that the CI target could be set "significantly above 20%". What are ARB's reasons for choosing 18% as the CI target for the LCFS? If ARB subsequently determines a higher CI reduction is warranted, will it need to amend the Scoping Plan first?

Response: The Scoping Plan³ provides a high-level strategy for achieving the 2030 target; 18 percent is consistent with CARB's adopted mobile source strategy, which is primarily designed to reduce criteria and toxics pollutants, and also provide GHG co-benefits. In establishing this 18 percent CI reduction target, as part of the public process, CARB developed the Biofuel Supply Module,⁴ to better understand the potential biofuel supply available to

³ <https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>

⁴ <https://www.arb.ca.gov/cc/scopingplan/meetings/meetings.htm>

California. As we move through the targeted rulemaking to enhance the LCFS program this year⁵, CARB has the ability to propose targets that differ from what is in the Scoping Plan as we will have more detailed discussions and analyses as part of the focused rulemaking. The process to propose the Carbon Intensity target is underway and has been the focus of several workshops to date. Many of the advocacy groups mentioned in your letter have been sharing their analyses and talking to CARB staff.

5. There is no discussion of the oversupply and banking of allowances in the cap-and-trade program in the Scoping Plan. The Brattle Group, CaliforniaCarbon.info, and other analysts agree that supply of permits has significantly exceeded demand and will likely continue to do so past 2020. The Legislative Analyst's Office recently published a report that finds "since entities can use banked allowances from earlier years to comply in later years ... banking creates a risk of not achieving [the SB 32 target]." Chris Busch from Energy Innovation recently published a report that found the oversupply of allowances in the program will allow covered entities to forego 26% of WCI-wide emissions reductions in the lowest possible scenario of allowance oversupply to 45% of WCI-wide emissions reductions in the highest possible scenario of allowance oversupply. What mechanisms does ARB have today, or may have in the future, to ensure that (1) banking of oversupplied allowances does not undermine ARB's planned reductions from the cap-and-trade program through 2030 and (2) that the program produces a sufficient carbon price in the coming years to continue to incentivize emissions reductions when factually emissions today are well below program caps?

Response: The term "oversupply of allowances" refers to the fact that the State is on track to beat the 2020 target and may have unused allowances. Some believe those unused allowances may hinder our ability to achieve the 2030 target.

As you note, there have been several analyses that have looked at this issue. However, each has their limitations, while there are others that indicate there is no oversupply when we look long term, or oversupply is not the right lens when looking at Program performance. Importantly, AB 398 (E. Garcia, Chapter 135, Statutes of 2017) directs CARB to look at this issue. And, we plan to do that over this year as part of our public process for amending the Cap-and-Trade Regulation to reflect the direction in AB 398.

⁵ https://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/lcfs_meetings.htm

Some believe we are ahead of schedule because businesses took early action by reducing emissions and should not be penalized for doing so. Others believe that unused allowances should be removed from the system regardless of the impact on the economy and fuel and energy costs for consumers, even if costs increase today.

While CARB has no public analyses to share at this time, we have some preliminary thoughts. Many analyses don't note that the price per allowance is critical to ensure actions are taken to reduce emissions. They also do not acknowledge that most of the current allowances are held in the State's accounts and not in businesses' accounts⁶. As long as allowances are in our accounts, one cannot emit against that allowance. Further, the analyses make assumptions about how many allowances are actually banked by covered businesses in the Program. Many businesses in the Program cannot spend significant capital to buy and hold allowances for the future. Even if an entity were to tie up their capital, the Cap and Trade regulation limits stockpiling under the existing holding limits. While there is a connection between supply and demand and prices for allowances, none of the analyses reflect the new direction in AB 398. The legislation includes considerable direction on the treatment of allowances with different price containment points, which will require careful analysis with opportunities for public process and input over the coming months.

CARB will evaluate the concerns expressed around demand versus supply and how the carbon price should be structured across the price containment points to ensure there is sufficient incentive to reduce GHGs, while not unduly raising allowance prices, which may translate to increased costs for consumers. We already know at current allowance prices, actions are being taken to reduce GHGs, even though emissions are below the caps.

A refined approach should be considered to shape the program to meet multiple objectives and concerns. And, AB 398 provides direction on many of these objectives, including reducing emissions while minimizing leakage and costs to consumers.

6. The Scoping Plan does not contain any explicit analysis of what cap-and-trade market prices are required to deliver the reductions ARB calls for from the cap-and-trade program. Appendix E provides some discussion, but provides no

⁶ <https://www.arb.ca.gov/cc/capandtrade/complianceinstrumentreport.xlsx>

basis for the assumptions ARB makes about market prices and specifically disclaims that these assumptions "should not be used as a forecast of emission responses to allowance prices." What market prices does ARB think will be necessary to achieve the role ARB established for the cap-and-trade program in the Scoping Plan? On what basis does ARB make such an analysis? Please provide the "Uncertainty Analysis Tool" used to create the figures and analysis in Appendix E2.

Response: In the development of the recent Scoping Plan, CARB modeled a range of prices for the Cap-and-Trade Program; specifically, the floor price and top strategic reserve price were used as the bookend values for allowances. As many economists and experts have previously noted, it is very difficult to identify the exact price for carbon that will result in an exact quantity of emissions reductions. This is one of the biggest challenges with a carbon tax — you don't know where to appropriately set the tax so as not to miss the target or achieve the target at a higher cost than necessary — and this is one of the biggest advantages of a Cap-and-Trade Program — we do not need an exact price and we can allow the market to find the lowest-cost reductions first. Today's allowance prices, as incorporated into the electricity dispatch models are already reducing GHG emissions. And an escalating price signal that keeps up with inflation is needed to ensure the carbon price signal is not muted over time.

CARB did perform an uncertainty analysis of the Scoping Plan and the tool for that analysis was posted to our website on the Scoping Plan page in December⁷. The analysis found that portfolio of measures in the 2017 Scoping Plan has the highest certainty of achieving the SB 32 2030 target.

7. Among other things, the Scoping Plan discusses, as required by AB 398 (E. Garcia, Chapter 135, Statutes of 2017), the Social Cost of Carbon and Methane, the 2020 APCR price level, minimum auction prices, and the cost per MMTcO₂e to achieve the SB 32 goal. What is the minimum or maximum price the Legislature can expect that the ceiling will not be set beneath or above? How does a hard price ceiling impact California's current program linkages? What input has ARB solicited from our current partners about the price ceiling required in order to preserve the current linkages?

⁷ https://www.arb.ca.gov/cc/scopingplan/uncertainty_analysis_nov2017.xlsx

Response: AB 398 includes several factors that CARB is required to consider when setting the price ceiling. Some of those factors include the social cost of carbon and the existing strategic reserve price tiers. This will be the subject of public process and input- however it is important to note that CARB does not foresee setting a price ceiling in 2021 below the current lower tier of the strategic reserve in 2020 – which would be about \$60. Based on the uncertainty analysis conducted for the 2017 Scoping Plan Update⁸, a price lower than the current Allowance Price Containment Reserve could reduce our certainty of achieving the 2030 target.

Another aspect of including and setting the price ceiling is our linkage with the Quebec and Ontario Programs — which provides further benefits through market liquidity and greater GHG reductions through collaborative climate change mitigation efforts. Due to the nature of linkage, any price ceiling we set will create an indirect ceiling on prices in the linked jurisdictions programs. For this reason, there must be close collaboration to ensure the price ceiling set here does not inadvertently erode the ability of linked programs to also achieve their own targets and jeopardize linkage. Because where California sets the price ceiling will impact the stringency of their programs, both Ontario and Quebec have expressed a strong interest in working closely with CARB as we work through the public process to develop proposals for a price ceiling.

8. The Scoping Plan refers to a "firm, declining cap" in the cap-and-trade program and a "strict overall emissions limit that decreases each year", but AB 398 instructs ARB to create a hard price ceiling for the cap-and-trade program and, if allowances are sold through that ceiling mechanism, obtain ton-for-ton emissions reductions to cancel out the emissions above the ceiling. What does ARB think would be the source of those ton-for-ton reductions? What impact would these price ceiling sales and corresponding ton-for-ton reductions have on California's GHG inventory? Under what circumstances does ARB believe these corresponding ton-for-ton reductions would contribute to complying with the SB 32 target for 2030?

Response: How a price-ceiling is set, is critical in this Program. We will want to ensure there is little chance of breaching the price ceiling feature, which, if poorly designed and breached could create the risk of exceeding our 2030 GHG target. Another challenge in implementing the price ceiling is ensuring

⁸ https://www.arb.ca.gov/cc/scopingplan/2030sp_app_econ_final.pdf

environmental integrity if emissions exceed our caps. In other words, we need to ensure excess GHG emissions beyond our caps are offset by reduced emissions elsewhere. We would need to find other GHG reductions on a ton-per-ton basis to compensate for all excess emissions beyond our caps. This means looking for reductions outside of the covered sectors and most likely includes reductions associated with natural and working lands, such as enhanced sequestration in forestry, and range and agricultural lands. In short, our efforts on setting a price ceiling will be focused on balancing the need to maintain a sufficient carbon price signal for investment in technology and research to ensure we achieve our 2030 target, while ensuring we can minimize leakage and cost impacts to residents.

9. If the cap-and-trade program continues to experience oversupply conditions for several more years, many experts expect that market prices are likely to remain relatively low. However, the declining program caps could eventually lead to a scarcity of allowances in the mid-2020s, with relatively high carbon prices. Please describe how ARB expects the transition to unfold from a market with extra allowances to one with a scarcity of allowances, and how will the choices ARB makes in implementing AB 398 affect both the price signal the program sends to reduce emissions in the near-term as well as the program's ability to close the gap between measures identified in ARB's Scoping Plan and the SB 32 target?

Response: CARB expects a smooth transition due to cost-containment features that already exist in the program and the new features included in AB 398. One key feature of the Cap-and-Trade Program is the ability for businesses to reduce emissions early and 'bank' those allowances for future use. This can significantly lower the cost of meeting emissions limits by providing temporal flexibility and encouraging early action. Banking allows businesses to plan and appropriately manage their costs for the Cap-and-Trade program through limited hedging up to the holding limits. The continued use of banking, carefully designed price containment tiers as required by AB 398, allocation to minimize leakage, a steadily escalating auction floor price, and sufficient offset supply should provide for a smooth carbon price trajectory through 2030.

10. As the Scoping Plan has moved through several drafts, the expected emissions reductions from direct reduction policies like the Short-Lived Climate Pollutant program, Zero-Emission Vehicles, etc. have remained fairly constant. The cumulative amount of GHG emissions reductions expected from the cap-and-

trade program, on the other hand, has fluctuated drastically over the last year: from 191 MMTC0 2e to 296 MMTC02e, and was finally determined to be 236 MMTC0 2e. Please explain and justify the drastic changes in these projections.

Response: As the Scoping Plan took over two years to develop⁹, CARB updated modeling assumptions over time as new information became available. This was to help ensure the most recent data was used in the final plan. We also received legislative direction that warranted changes to the final Scoping Plan, such as removing the refinery measure. Other notable changes included a reduction in the reference scenario once additional coal divestitures were fully reflected. In consultation with the State's energy agencies, the reference scenario with respect to Renewable Portfolio Standard performance was changed to reflect over-performance of that policy. And, per AB 398 we removed the refinery measure, which results in the Cap-and-Trade Program making up the reductions that were previously attributed to that measure. In the final Scoping Plan, CARB also found that we needed fewer reductions to achieve the 2030 target than originally modeled; the Renewable Portfolio Standard increased from 40 percent to 50 percent between 2020 and 2030 and would contribute less to the total reductions needed, and that the Cap-and-Trade Program needed to increase in its role to account for the refinery measure. This is all detailed in the modeling output files and supporting documentation that was posted to CARB's website¹⁰.

11. AB 398 extends the cap-and-trade program as a part of California's overall GHG emissions reductions efforts post 2020. Part of the design for the post-2020 cap-and-trade program was setting the initial industry assistance factors to the same level as the 2015-2017 compliance period. Notably, AB 398 did not make any such changes to the current cap-and-trade program and its implementation through the end of 2020, but ARB has proposed to adjust the assistance factors for the third compliance period of the current cap-and-trade program nonetheless. Given the lack of statutory direction for such an action, why has ARB proposed this change and how does ARB's reasoning for the proposed change relate to its statutory authority to design the cap-and-trade program to minimize leakage?

⁹ <https://www.arb.ca.gov/cc/scopingplan/meetings/meetings.htm>

¹⁰ Ibid

Response: AB 32 and AB 398 require that CARB minimize leakage. In this context, leakage refers to the relocation of emissions, jobs, and production outside of the State in response to the Cap-and-Trade. Allocation to industry is to mitigate against leakage. Assistance factors are one of several factors used in allocation to industry for leakage prevention. With AB 398 setting the assistance factors at 100 percent from 2021 through 2025, with data that shows we are on track to achieve the 2020 target early, and the much deeper reductions needed in the next decade, staff believes a smooth allocation path between 2017 and 2021 is the most conservative path to protect against emissions leakage, enable earlier investments in onsite equipment upgrades, and allow for economic growth.

Importantly, a 100 percent assistance factor does not mean businesses get all the allowances they need to comply with the Program—they still need to reduce onsite or seek out additional allowances. By 2030, businesses will receive about half of the allowances they receive today as the allocation continues to drop each year at the same rate as the overall caps in the Program¹¹. Between 2021 and 2030, the cap decline rate is almost double what it is today.

For background, when the Program was initially designed, assistance factors were set at 100 percent and were proposed to drop each compliance period as there was an expectation for carbon pricing or carbon regulations to phase-in in other regions. The Board directed staff to continue to evaluate this issue and new studies and ongoing engagement, with public process, have been underway at CARB since 2016¹². As this work was going to continue during the second compliance period, in the abundance of caution, the Board kept assistance factors at 100 percent for the second compliance period. Staff has continued to evaluate data from focused studies and continues to discuss this with each industrial sector as part of developing proposals for assistance factors for the third compliance period. Importantly, we have yet to see the expansive use of carbon pricing or other GHG regulations, consequently the leakage risk has not changed significantly since the beginning of this Program. Moving forward, we are hopeful actions under the Paris Agreement will help increase the use of regional policies aimed at addressing GHGs, which would mean that California industry and their competitors in other regions will face similar requirements.

¹¹ https://www.arb.ca.gov/cc/capandtrade/meetings/20171012/ct_presentation_11oct2017.pdf (slides 10-12)

¹² <https://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm> (May 2016)

CARB's early estimates indicate that a change in the assistance factors to 100 percent in the third compliance period would result in providing approximately 2-3 percent of the 1 billion allowances available in 2018 through 2020. We believe the impact on GGRF will be fairly small, which has to be carefully weighed against the possibility of leakage.

12. Recently ARB lost a lawsuit in bankruptcy court against the La Paloma Generating Company. Ultimately, the affected facility's outstanding compliance obligation under the cap-and-trade program was discharged in bankruptcy and the successor company will not be liable for surrendering compliance instruments for these discharged liabilities. Given the case's outcome and the potential for future bankruptcy proceedings involving large GHG emitters covered under the cap-and-trade program, how does ARB intend to ensure the GHG emissions reductions required to maintain the environmental integrity of the cap-and-trade program? What measure is ARB putting in place to ensure a similar situation cannot occur in the future?

Response: On November 9, 2017, a Bankruptcy Court in Delaware held that the new owner of the La Paloma Generating Station, a covered source in California's Cap-and-Trade Program, did not assume any obligation for emissions that occurred at the source prior to the bankruptcy sale. The Court also found that CARB could expressly create such liability in a future regulation amendment. On November 20, 2017, CARB appealed the court's decision. CARB's long-standing interpretation of the Cap-and-Trade Regulation is that the regulation as a whole requires a new owner of an emissions source to assume any outstanding obligation that occurred prior to the change in ownership.

Even while appealing the decision, CARB will commence a narrow rulemaking to expressly clarify that a successor entity after a change of ownership is responsible for any outstanding, pre-sale compliance obligation of the predecessor entity. We expect this rulemaking will conclude in mid-2018. In the specific La Paloma case, if CARB is unsuccessful on appeal, we will ensure environmental integrity in the program through the retirement of allowances equivalent to any outstanding emissions associated with this particular situation.

13. What is the process for ARB to work with, and the scope of, the Independent Emissions Market Advisory Committee?

Response: This committee is designated in statute to “evaluate the economic and environmental performance of the Cap-and-Trade Program and other climate policies.¹³” The committee, when formed, will include representation from the Governor’s Office, Senate, Assembly, and Legislative Analyst’s Office. The group is to be convened by the California Environmental Protection Agency to provide an external and independent review of CARB’s programs and may choose to provide recommendations as part of that review. As the committee works through its charge, CARB staff will make themselves available to discuss our climate programs as needed.

14. AB 398 defines "direct environmental benefits in the state" as "the reduction or avoidance of emissions of any air pollutant in the state or the reduction or avoidance of any pollutant that could have an adverse impact on waters of the state." Given that, how does ARB intend to apply the requirement that compliance obligation under cap-and-trade post-2020 may "be met by surrendering offset credits of which no more than one-half may be sourced from projects that do not provide direct environmental benefits in state"? Does ARB interpret the statute to mean that for every offset surrendered that does not provide a direct environmental benefit in the state that one more must be surrendered that does provide a direct environmental benefit in the state? Or does ARB interpret statute to mean that a covered entity could surrender offsets totaling half of the allowable limit, all of which provide no direct environmental benefit in the state?

Response: Offsets are an important cost-containment feature in the Program which allows covered businesses to purchase reductions from sectors not covered by the program. AB 398 provides direction on offset usage limits and sets aside half of the limit to be only met through offsets that provide direct environmental benefits to the State. This criterion is to ensure a significant volume of offsets is generated in state and those co-benefits are realized in state. CARB has received considerable public comment on this provision and how to interpret how the 50 percent requirement applies¹⁴. For this to be a successful cost-containment feature in the Program, maximum flexibility will be important. AB 398 also includes a reduction in the offset usage limits which is expected to already reduce how many offsets from outside of the State can be used in the Program. CARB will be working

¹³ https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB398 (Section 38591.2)

¹⁴ <https://www.arb.ca.gov/lispub/comm2/bccommlog.php?listname=ctoact122017wkshp-ws>

through the public process to design this feature over the next year to propose language in response to the direction in AB 398.

While GHG reductions anywhere are a benefit everywhere when considering climate change, it is important to note that direct environmental benefits may take different forms and may differ by project type. For example, ozone depleting substances projects support job creation and utility rebate programs in State through the decommissioning of old refrigerators and destroying the high global warming potential refrigerant gases in the appliances. However, the destruction facilities for the gases are not located in California and the material is sent to other states that have allowed for the permitting of those destruction facilities. In this situation, the State benefits from avoided potent greenhouse gases from leaking from the old refrigerators and in-state job creation; however, the ultimate destruction of the gases occurs outside the State to ensure these gases are never released into the air. This is just one example of the types of questions CARB will need to engage in with stakeholders as part of the public process, in implementing the direction in AB 398.

15. The Scoping Plan contains assumptions about Legislative behavior, both policy and fiscal, as well as technological advances:

- a. The Scoping Plan assumes that cap-and-trade auction revenues will be deposited into the Greenhouse Gas Reduction Fund (GGRF) and will be used to further the purposes of AB 32 and facilitate reduction of GHG emissions. However, neither ARB nor the current Legislature can bind the spending decisions of a future Legislature, and a future Legislature may choose to spend cap-and-trade auction revenues differently. How does ARB plan to meet its targets if GGRF expenditure does not match the expectations in the Scoping Plan?

Response: The California Climate Investments (CCI) ensure that all Californians benefit from the state's climate program, including those who live in disadvantaged communities and in low-income households¹⁵. In the context of the programs that CARB administers, CCI has been used to provide expanded access to clean transportation options like new technology cars, and expanded transit availability in a way that increases equity for these communities. Across other implementing agencies, CCI also funds home

¹⁵ <http://www.caclimateinvestments.ca.gov/>

weatherization projects for low-income households and urban forestry and greening projects. CCI ensures greater equity in distribution of climate benefits, and helps us make progress toward our goals through some demand side reductions for energy and fuels, but the cap in the Cap-and-Trade Program applies regardless. If the expenditures are re-directed to other types of projects, covered businesses, including utilities, fuel suppliers, and industry will need to do more to meet the targets.

- b. The Scoping Plan also assumes more than a 45% decrease in fossil fuel demand for transportation by 2030, which seems overly ambitious. Given the uncertainty regarding federal fuel economy standards and the need for waivers to expand many state programs, how is this assumption justified?

Response: The transportation sector accounts for 50 percent of the State's GHG emissions; correspondingly, the 45 percent decrease in fossil fuel demand by 2030 modeled in the Scoping Plan is largely built on our existing new vehicle standards and programs under our control – like innovative clean transit and other in-use programs. CARB would vigorously fight any attempt to restrict our ability to set GHG standards. If we ultimately lost, it would imperil our ability to meet the air quality and GHG targets. We would have to make up the reductions through new programs aimed at the transportation sector– as well as emission reductions from other sectors, as necessary. Losing these standards would also drastically impair our ability to continue to make progress on criteria and toxics emissions from this sector.

- c. Grid regionalization is another assumption in the Scoping Plan that requires action by the Legislatures and Governors of several states. How does ARB plan to respond if regionalization does not occur in the way assumed by the Scoping Plan?

Response: For the electricity sector, CARB did not rely on regionalization to help ensure we meet the SB 350 (De Leon, Chapter 547, Statutes of 2015) renewable energy target of 50% by 2030.

- d. Zero Net Energy policies for buildings have been determined by the Legislative Analyst's Office to be overly expensive and not effective in reducing GHG emissions. What is ARB's justification for these and other assumptions made in the Scoping Plan, and what will ARB do to ensure compliance with the SB 32 cap if these assumptions turn out to be false?

Response: CARB did not rely on Zero Net Energy policies to achieve the 2030 target in the Scoping Plan. It is identified as a policy that warrants further evaluation and research, and has the potential to help achieve our long-term climate goals. For CARB, it's not just theoretical, our new laboratory under development in Southern California will be a Zero Net Energy facility. Zero Net Energy buildings have grown in both the private and public sector. In California, there exist about a dozen Zero Net Energy buildings developed and operated by both private and public entities¹⁶.

16. In the 2008 Scoping Plan, ARB estimated future GHG emissions. We now know that while certain conditions like the drought and unexpected shutdown of the San Onofre Nuclear Generating Station increased emissions above what was expected, the recession caused GHG emissions to fall far below what was expected. We understand that forecasting is an inexact science, but in order to avoid repeating previous mistakes, has ARB performed any retrospective analyses on previous Scoping Plans to determine where the modeling and assumptions in those plans have not been accurate, where programs in those plans have under- or over-performed on GHG emissions reductions, and where there may be any systematic biases or patterns where such forecasts turned out to be incorrect? And if so, how are these analyses made available to the Legislature and public for review and comment? Does ARB have, or plan to develop, any public mechanisms to track implementation of the 2030 Scoping Plan going forward?

Response: Many of the measures in the first Scoping Plan have their own trackable metrics, in addition to the annual change in aggregate GHGs – against which CARB tracks progress towards the State's climate targets. The data shows that the initial Scoping Plan and the approach of a mix of prescriptive, incentive, and market mechanism policies was the right choice as the State is on track to achieve the 2020 target early, all while the economy has grown. In the initial Scoping Plan, we estimated program performance based on the information available at the time. Subsequently the lower costs and faster deployment of clean technologies far outpaced those early expectations.

¹⁶ https://newbuildings.org/wp-content/uploads/2016/10/GTZ_2016_List.pdf

After discussions with the economic reviewers for the most recent Scoping Plan Update, CARB conducted an uncertainty analysis that let us consider the impact of uncertainty across three metrics - the cost of emission reductions, the amount of reductions that can be achieved, and future economic conditions (business as usual).

As noted previously, data, including annual GHG inventory is made publically available, metrics are included in the latest Scoping Plan Update, and a number of opportunities for oversight and review exist as shown in the attachment.

With recent legislation, in addition to the information state agencies make available, there are additional opportunities for reviewing the economic and environmental performance of the Scoping Plan in aggregate and individual measures. AB 398 calls for an independent emissions advisory committee to report annually on the economic and environmental performance of Cap-and-Trade, and other related climate policies. AB 398 also calls for the Legislative Analyst's Office to annually report to the legislature on the economic impacts and benefits of specified greenhouse gas targets.

17. Given that California only emits around 1% of global GHGs, it has been said that the point of our climate policies is to create a model that can be exportable. Given the abundance of expertise in California, at ARB and other state agencies, as well as the general wealth of the state, how can our model be replicated by more conservative and/or less wealthy jurisdictions, particularly in developing countries?

Response: California's biggest impact is our leadership through the thoughtful design and successful implementation of climate policies that result in reductions in GHGs, improved public health, and economic growth. We have a working model that includes regulations, incentives, and market-based programs that has been proven to reduce emissions while maintaining a strong and growing economy. There is a tremendous interest in our programs and policies by other governments – both developed and developing.

For developing countries, we can help through capacity building so that the political and technical experts in those regions hear that many of the questions and concerns they have, were the same ones we had as we embarked on our efforts over a decade ago. We can help foster dialogue between our industry and their industry on emissions reductions technologies and strategies.

Not all of what we have done may relate directly to other regions whose emissions sources or economies are different, but we also have foundational

knowledge that is important for any effort to address GHGs—such as GHG inventory and GHG reporting programs.

On a practical level, we benefit when programs similar to ours are adopted by other jurisdictions. Cleaner vehicles and fuels help improve their local air quality, which sometimes impacts our air quality — pollutant transport from Mexico and China. Further, as other jurisdictions adopt standards for clean vehicles or renewable electricity, the result is larger markets for these technologies which helps reduce costs through economies of scale and creates new business opportunities.

During a time when little is happening at the federal level, we have the opportunity and, in particular, the responsibility to help where we each can.